

ON CENTRAL AUSTRALIAN MAMMALS

PART I THE MURIDAE

By H. H. FINLAYSON

[Read 13 June 1940]

PLATES XIV AND XV

During the summers of 1931-1935 the writer made collections of mammals in that portion of South-west Central Australia lying between latitudes $23^{\circ} 30'$ and $28^{\circ} 0'$ south (approximately) and longitudes $136^{\circ} 30'$ and $128^{\circ} 10'$ east (approximately). The material personally taken has since been increased by the efforts of friends in the area, and in working it out I have included in the examination specimens acquired by the South Australian Museum at various times from the same or adjacent parts of the country.

NOTOMYS ALEXIS Thomas

This species, after a period of confusion with *mitchelli*, was recognised by Thomas in 1922 at Alexandria in approximately 19° S and $136^{\circ} 50'$, and has since been proved to have a range, from east to west, extending from 144° to at least 124° E. longitude. The occurrences now recorded provide an extension of its range to the south of nearly 700 miles. While three races have been defined, they are distinguished by comparatively trivial differences, and over the whole of this enormous tract it maintains a notable constancy in its essential distinctions from allied species.

It is the "dargawarra" of the Pitchenturra natives, and though they speak of another allied animal, the Wilchimba, it is the only species of the genus personally taken in the area worked over, and greatly predominates also in all other collections of *Notomys* from the same region, which I have examined.

It was taken chiefly in the more grassy areas of the loamy mulga flats between the main ranges, but also in flat valleys within the ranges, particularly in the Musgraves; it was less frequent in sandhill areas. Like all the small mammals of the centre its occurrence is sporadic and fluctuating, and areas in which it was very plentiful in one season were found to be destitute of it in the next, though conditions were often apparently unchanged. It eats a small amount of green vegetation, and at permanent camps in the Everard hills where vegetables were grown near the soaks, it became for a time in 1932 a nuisance owing to its depredations on the young shoots of cucumbers and beets, etc. Ordinarily, however, there is little doubt that seeds are its staple diet, and the movements of its colonies are conditioned probably more by the abundance of seeds than of green vegetation. This is clearly shown by the frequent prevalence of dargawarras in areas of seeding spinifex. In January, 1933, a few miles east of Mount Conner, a considerable area of *Triodia* was crossed which had made luxuriant growth after

a local rain and upon which the seeding tops were rapidly ripening. Around the base of nearly every clump was strewn a mat of severed stalks from which the seed had been removed and the sand was reticulated with *Notomys* tracks, though no doubt other murids participated in the harvest also.

According to the blacks, the large round woody seeds of the quondong (*Eucarya acuminata*), which have a rich fatty kernel, are also eaten by this species; the seed case is neatly drilled on one side only with a small hole, and the contents extracted. Under almost any quondong tree a proportion of such drilled and emptied seeds may be found, though the fact that so many are left untouched, suggests that it is an emergency food rather than a staple diet. In trapping it, both fat and bread were found effective.

The burrow is usually comparatively simple; one completely excavated on a loamy flat on Tietkens Birthday Creek in the Musgraves was six feet long and about one foot deep, with a single exit and entrance hole and no side passages; in other less completely examined systems, a series of side passages with independent pop-holes seemed to have been developed from a simple straight drive such as the above. In neither case was any of the excavated soil brought to the surface, and the array of pebbles about the exits and entrances which has been recorded for other species was not seen.

In summer it is very seldom seen in the day time, except momentarily, when one may be dislodged from a surface shelter while travelling. But at night it is a frequent visitor to camps and does not seem at all embarrassed by firelight or even an electric torch. At Walthajalkanna, on the northern front of the Everards, the southern race was very plentiful in February, 1933, and came boldly into the camp in numbers every night, and if given bread and cautiously approached could be freely examined by torchlight at a distance of a few feet. When moving about slowly, they go on all fours like the less specialized murids and look rather ungainly, the long brushed tail being carried always well clear of the ground and frequently arched over the back. When startled they resort at once to saltation; the action in doing so is appreciably different from that of the macropods, the trunk being thrown far forward out of the vertical with the tail almost straight out behind. In trapping them a light set is necessary, as they remove the bait with remarkable gentleness and finesse; frequently I watched individuals completely remove the bait from a trap without springing it, though it would probably have caught a house mouse. Buckets of water left two-thirds full proved very effective traps, and the only completely undamaged examples suitable for skeletons were secured in this way; those dug out by the blacks are nearly always mutilated in some way in the handling.

At Chundrinna, also near the Everard Range, several living examples were kept for a few days for observation. In aspect they are quite like *cerwinus* of the Lake Eyre Basin. They took a miscellaneous diet freely and appeared quite comfortable and reconciled. With pleasing recollections of the gentleness of fresh caught examples of *N. aistoni* at Appamunna, I made free to handle these *alexis*.

in the same way, but was startled to find a great difference in temperament; all advances being repulsed with vigorous biting and squealing.

The animal is almost odourless. A *Laclaps* occurs very freely and another flea-like parasite, unfortunately not preserved.

The material examined comprises an excellent series of 132 specimens, of which 34 are skins and the rest alcoholic preserved. The bulk of the material belongs to properly localized and dated collections, and the following list gives the data on reproduction and sex ratios which can be extracted from the records.

- (1) February, 1932. Between Wollara and Basedow Range. Approximately $24^{\circ} 55'$ south and $132^{\circ} 25'$ east, about six weeks after heavy rain; 11 ♂, 10 ♀, and 2 unsexed. Of the series 11 are adult, 10 subadult or immature and 2 nestlings. Several males have well developed scrotal testes, and of 5 adult females examined 4 are pregnant.
- (2) February, 1932. Ayers Rock. Approximately 90 miles west-south-west of the above. One adult male.
- (3) January, 1933. Erliwunyawunya and adjacent points on the south side of the Musgrave Range, at approximately $26^{\circ} 23'$ south and $131^{\circ} 40'$ east; two months after good rains; 4 ♂ and 5 ♀, and 2 unsexed; 7 are immature of half to two-thirds growth. One adult ♀ only examined, and this pregnant; two subadult males show gonad activity, but the adult male with testes completely retracted.
- (4) Winter months of 1931. From unspecified localities on the same latitude as the above, but beginning further west and extending from the Tomkinson through the Mann to the Musgrave Range; 7 ♂, 5 ♀, and 9 unsexed. Two examples only, fully adult, and of the remaining subadults 8 are nestlings. Two females were pregnant, but none of the males showed scrotal testes.
- (5) February, 1933. Chundrinna, between the Musgrave and Everard Ranges at approximately $26^{\circ} 50'$ south and $132^{\circ} 15'$ east; 10 ♂ and 10 ♀. All adult or nearly so, and reproduction entirely suspended; no trace of gonad activity in any male, and all females non-pregnant with nipples so strongly retracted as to be difficult to find.
- (6) February, 1933. Walthajalkanna, in the northern outliers of the Everard Range, about 15 miles E.S.E. of the above; 10 ♂, 13 ♀, all adult or near adult and with reproduction quiescent as above. Of 8 males examined 2 only show a slight development of testes in the scrotal site.
- (7) Winter of 1915. Wantapella, at approximately 65 miles E.S.E. of the above; 6 ♂ and 2 ♀. Two only are adult or nearly so, and the remainder represent almost as many litters descending in size to small nestlings. Evidently a time of active reproduction; the adult female is lactating and several subadult males show signs of gonad enlargement.

- (8) Winter of 1930. Wells 24 and 26 on Canning Stock Route, in approximately $23^{\circ} 15'$ south and 123° east. Two δ , 1 ♀ , 3 unsexed. Reproduction evidently active; of the females one is lactating and the other pregnant.
- (9) Miscellaneous specimens, including the Elder Expedition material, not properly localized but from as far west as Mount Squires at $26^{\circ} 17'$ south and $127^{\circ} 24'$ east, and others from south of Oolarinna water, ca. $27^{\circ} 35'$ south and $132^{\circ} 50'$ east, Idracowra on the Fincke at $25^{\circ} 0'$ south and $133^{\circ} 45'$ east, Mount Burrell 50 miles north-west of Idracowra, and Charlotte Waters $25^{\circ} 55'$ south and $134^{\circ} 55'$ east.

The most northerly and westerly records in the collection are given by the Alroy topotypes and the Canning Stock Route material, respectively, the most southerly by the south of Oolarinna specimens, and the most easterly that from Charlotte Waters.

The data is sufficient to show that the incidence of reproduction is not seasonal, since highly active groups are to be found in both winter and summer, but in two cases, at least, follows upon periods of good rains. An interesting feature is the high incidence of sexual activity amongst young males as compared with full adults; in most collections the maximum development, both of gonads and of the sympathetically responding gular gland, is to be found in definitely subadult material.

The number of embryos in un mutilated uteri varies from 2 to 5, with 3 as the most frequently occurring number. In the combined collection which can be sexed, the ratio is 54 δ : 55 ♀ .

External Characters

Within the area defined, two races, overlapping in distribution and intergrading in pelage characters coexist. In all collections north of the Musgrave Range, the dominant form can apparently be reconciled with the typical *N. alexis* Thomas of Alexandria in the Northern Territory. South of this line in the area of huge granite intrusions, a second form becomes increasingly numerous until in the Everard Range it is so dominant over the typical race as to form almost pure communities. With two minor exceptions which will be noticed later, all characters other than pelage are either constant or show similar variations having no geographical concentration, so that they may be dealt with by reference to the entire series *en bloc*.

Size, build and general appearance much as in *N. cervinus* of Waite *et auct.* of the Lake Eyre Basin. Mystacial vibrissae rather weaker, 45-55 mm. Ear conspicuously short and narrow, 21-24 mm. with a mean of about 22 mm.

The *gulo sternal glandular* area (pl. xv, fig. E) is highly characteristic and presents a combination of a distinct gular pit as in *cervinus* Waite with a well marked sternal tract of specialized hair as in *mitchelli*. In the sexually active male the gular pit at its maximum development is deeper and more pouch-like than in any of the forms I have reviewed; the area involved by it, however, is smaller

than in others and the feature correspondingly conspicuous. The floor of the recess slopes caudad and anteriorly merges indefinitely with the mental area without the interposition of labia or skin folds, but laterally and posteriorly these are well developed and fleshy and tend to overhang the cavity which reaches a depth of 4 mm. and has a diameter at the surface of 5-6 mm. The greater part of the labia and the anterior part of the floor of the recess are well haired, though the hair is not strongly contrasted with that of the surrounding areas, while the deeper parts of the recess and sometimes the posterior parts of the labia are naked.

In inactive males and females the pit is much less deep but the structures remaining are essentially similar and show a circular sunken area, naked and creased posteriorly and with more or less developed lateral and posterior skin folds. In the unsunken condition this small circumscribed area of nude skin is especially characteristic, and in well made skins it shows up as a conspicuous naked disk. The degree of invagination of the pit is definitely linked to the sexual cycle,

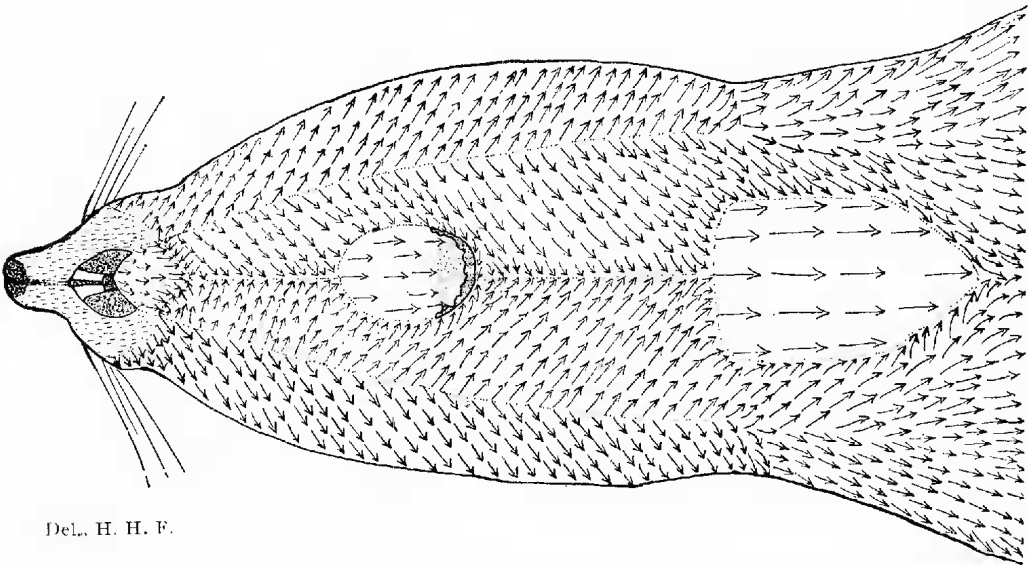


Diagram of the hair tracts about the gulosternal glandular area in an adult male of *Notomys alexis everardensis*. Drawn from fresh material before preservation. (The gland sites are somewhat more posterior than indicated.)

just as the raising of the presternal gland is in "*aistoni*" but there appear to be marked individual variations in the degree of response. The site is plainly indicated in furred nestlings.

The sternal patch is present in all males and in a small proportion of females. In its maximum development it takes the form of a shield-shaped area on the chest 12 mm. wide by 15-16 mm. long, densely covered by short, rather stiff specialized hairs separated from the gular pit by a band of ordinary ventral fur. In the dark-bellied southern race the area is very conspicuous as in *mitchelli*

macropus, but in the pale-bellied northern form and intermediates it is much less so, though the glistening of the area is usually apparent if the specimen is suitably held, and the increased density of hairing is usually obvious also, on close inspection. Its condition does not vary with gonad development. No example of the southern race with well-developed scrotal testes has yet been examined, and none of the 40 or more examined show a deeply invaginated gular pit such as occurs in the pale-bellied form, though the surface structures are precisely similar. Whether there is a racial difference in the degree of development of the gland in the south is not determinable with the present material.

The *manus* varies considerably in absolute size and is frequently unequally developed on the two sides; the length from base of outer carpal pad to tip of third apical pad, from 7-8 mm., and the width at base of digits 2-5, from 3-4 mm. The third digit to 4 mm. The size and proportion of pads also very variable; usually the length of outer carpal $>$ 2nd interdigital $>$ 1st = 3rd. The elongation of the outer carpal is greater than in *cervinus* Waite and "*aistonii*" and resembles *mitchelli macropus*, but examples in which the carpals are subequal are numerous. The palm is pink.

The *pes* is conspicuously short, 32-34 mm. with a mean of 33 in fully adult examples, but frequently as low as 30 in subadults of nearly full growth. The maximum width of foot across pads at the base of digits 2-4 is 3.5-4.5 mm., and the length of third digit, 7 mm. The pads very much as in *cervinus* of Waite, though the interdigitals average somewhat wider; $3 >$ or $= 2 > 4 > 1$. The hallucal pad is present in 43, absent in 34. The undersurface of the toes is lightly haired, about as in *mitchelli macropus*, not obscuring the apical pads. The sole is slate or bluish pink in life, the digits a lighter pink.

The *tail* varies in length within wide limits in individuals at the same growth stage, and tends to be slightly shorter in females than males. In a few individuals there is a slight tendency towards incrustation of the basal third.

The clitoris is very small. The posterior mammary nipples are about 10 mm. from the clitoris and the anterior about 11 mm. from the posterior; when not functioning they are very strongly retracted. The scrotum is lightly pigmented at the posterior extremity only.

Pelage

(a) In the form which predominates in the batches from north of the Musgrave Range individual variation is considerable both in the colour of the sub-terminal band of the dorsum (as given by Brazenor), in the degree of grizzling of the coat by dark guard hairs and consequently in the texture and general external colour, and in the basal colour of the belly fur, which is usually pale plumbeous but frequently white. The latter character, which has been claimed as the exclusive possession of *cervinus* Waite, occurs in about 48% of subadults otherwise quite normal and is occasionally retained until nearly full growth is reached. The moult changes are very pronounced also, more so than in any of the other three species of the genus reviewed in these papers, though they are fore-

shadowed by certain anomalous pelages in the large "*aistoni*" series from the Lake Eyre Basin. The incidence of the moult is highly irregular but is obviously responsible for the considerable proportion of thin dull and fluffy pelages devoid of guard hairs, which are to be found in most of the batches, on individuals having precisely the same skull and external characters, as normally clad individuals. The covering of the tail is particularly variable, dark blackish-brown upper surfaces well contrasted with a pure white undersurface, being varied capriciously by others in which the upper surface is a pale uncontrasted greyish-brown. The brush is generally inferior in development to that in *cervinus*, "*aistoni*" and *mitchelli macropus*, but there is great variation and the difference is sometimes slight. Sexual differences almost nil; age differences chiefly shown by a tendency to duller colours in immature stages.

The characters of the original series from Alroy and Alexandria have not been adequately reviewed and the range of variation there is not defined, but three topotypes kindly made available by Mr. Glaucert of the Western Australian Museum can be very closely matched in the northern part of the present area.

(b) As indicated above almost the entire collection from the Everard Range area and a proportion of those from the Musgrave Range differ from those from more northerly localities in certain pelage characters, which may be thus summarized:

- (1) the pelage is denser and longer on all surfaces and frequently reaches 16 mm. on the posterior back, where it is more heavily grizzled;
- (2) the basal colour on all surfaces is much darker, particularly on ventrum and inner surfaces of limbs where the basal colour is deep plumbeous to almost black, the gulo-sternal tract alone excepted;
- (3) while the dorsal colour varies as in the north, the dark based ventrum is quite constant, and in 50 examples examined white or pale-bellied variants analogous to those so numerous in the north have been quite absent.

The effect of alcohol immersion upon the colouration of this species has been very fully investigated, a series of closely matched individuals having been selected in the field and a portion of them then skinned and the rest alcohol preserved. In the majority of individuals the change is striking; in two years the original yellow and orange buffs of the subterminal band changed to a pinkish rust colour, and after six years to a deep brown rust; at the same time the black guard hairs and the basal fur faded to rusty brown greatly reducing the effect of grizzling, and the pure white of the belly became yellow. The individuals which have changed least are those at the thin dull moult phase noted above.

Skull and Dentition

An excellent series of 40 skulls, all derived from individuals of known characters in the flesh and representing a wide range of growth stages has been examined.

The skull resembles *cervinus* Waite *et auct.* of the Lake Eyre Basin but is less specialized, has a smaller braincase and less tapered zygomatic outline. There

is so much variation, however, that many examples could scarcely be separated from that species by inspection.

The range of linear skull dimensions of individuals which have attained average bulk and which are free from obvious immaturity in externals is not excessive, but, as in some murid series recently reviewed from the Lake Eyre Basin, there is a wide individual variation in structural characters, and considerable disproportion of parts in examples at approximately the same growth stage. Individual capricious variation involves particularly the antorbital fossa, the mesopterygoid fossa, anterior palatal foramina and lacrymals, while disproportion is shown largely in the muzzle region and anterior zygomata. The retention of juvenile characters of slender muzzle and narrow anterior zygomata in otherwise advanced skulls is responsible for some marked contrasts in the shape of some of the largest examples of the series derived from individuals, precisely similar externally. Much of the variation is undoubtedly due to varying pressure of ecological conditions on the life cycle of individuals, though direct demonstration of such a relation is rarely possible. An accessory cingular cusp on the anterior lamina of the upper M^1 , very much as in *N. cervinus* Waite *et auct* of the Lake Eyre Basin and *N. mitchelli macropus* of Ooldea, is well developed in 10 examples. The anterior lamina of the first upper molar is usually bicuspid even when unworn, but a distinct third buccal cusp is present in a small proportion of individuals as in most of the species.

The variations noted are shown by both races in about the same degree, but there is a distinct tendency for the skull of the southern race to be stouter, and with relatively broader muzzle and squarer zygomatic outline, though the presence of numerous exceptions renders it difficult to illustrate the difference by measurement. The only important difference from the type skull of *alexis alexis* from Alexandria shown by the whole series is the inferior zygomatic width; the 17 mm. quoted for the type seems excessively large and is possibly an aberration if correctly recorded, though a single very large skull of the present series approaches it with 16.5 mm.; the value for this measurement, quoted independently by Brazenor, agrees with the present series.

Flesh Dimensions

As the values for the two races are in complete agreement, no segregation is made in the following figures which give the range of dimensions and true mean in (1) 7 ♂ and ♀ subadults, and (2) 10 ♂ and 13 ♀ fully adult. The means are in brackets.

	1		2	
Head and body	- 95-102 (99);	95-100 (97)	101-109 (103);	97-112 (104)
Tail	- - - 131-142 (136);	120-132 (128)	141-150 (145);	130-139 (134)
Pes	- - - 31-32 (31.5);	30-31 (31)	32-34 (33);	32-34 (33)
Ear	- - - 19-23 (22);	19-20 (19.5)	21-24 (22.5);	21-23 (22)
Weight in grammes	- 27-37 (30);	27-34 (29)	30-45 (40);	31-47 (36)

Skull Dimensions

The following figures give the range and true mean of the skull dimensions of adults of *Notomys alexis* vars, in (1) 3 ♂ and 3 ♀ of the typical race from Wollara, (2) 8 ♂ and 8 ♀ of the southern race from the Everard Range. All skulls show wear on all laminae of the upper M¹ and are extracted from individuals free from any obvious immaturity in external characters.

Greatest length	- -	28.8-39.2 (29.5); 30.0-30.8 (30.3)	29.0-30.4 (29.7); 29.1-31.6 (30.1)
Basal length	- -	23.8-24.5 (24.1); 23.8-24.6 (24.3)	23.7-25.5 (24.4); 23.8-26.0 (24.7)
Zygomatic breadth	- -	15.0-15.6 (15.3); 14.5-15.8 (15.1)	15.0-15.7 (15.3); 15.0-16.5 (15.4)
Braincase breadth	- -	14.1-14.7 (14.4); 14.4-14.6 (14.2)	14.0-14.9 (14.5); 13.6-15.0 (14.4)
Interorbital breadth	- -	5.0-5.1 (5.1); 5.1-5.7 (5.4)	5.2-5.5 (5.4); 5.0-5.6 (5.3)
Nasals, length	- -	10.2-10.8 (10.6); 10.7-10.9 (10.8)	10.5-11.2 (10.8); 10.7-11.4 (11.0)
Nasals, greatest breadth	- -	2.8-3.0 (2.9); 2.8-3.0 (2.9)	3.0-3.4 (3.1); 2.8-3.1 (3.0)
Palatal length	- -	15.2-15.3 (15.2); 15.0-15.7 (15.3)	15.0-16.0 (15.4); 15.0-16.2 (15.7)
Ant. Pal. Foram., length	- -	5.0-5.6 (5.3); 5.3-5.5 (5.4)	5.0-5.7 (5.3); 5.0-5.5 (5.2)
Ant. Pal. Foram., breadth	- -	1.6-1.9 (1.8); 1.7-1.8 (1.7)	1.5-2.0 (1.7); 1.6-1.9 (1.7)
Bulla length	- -	5.9-6.0 (5.9); 5.6-5.8 (5.7)	5.5-6.0 (5.7); 5.9-6.3 (5.9)
Upper molar series	- -	5.0-5.0 (5.0); 5.0-5.0 (5.0)	4.9-5.1 (5.0); 4.9-5.0 (5.0)
Incisive angle	- -	63°-68° (65°); 60°-60° (60°)	58°-60° (59°); 58°-65° (62°)

Definition of the Southern Race

The form of *Notomys alexis* occurring in the area about the Everard Range and representing the southern limit of the distribution of the species, I would propose to recognise as distinct, under the name **Notomys alexis everardensis**.

General characters, flesh dimensions and range of external colourations as in the typical race, but the pelage differing as indicated above. The skull is somewhat heavier in build and in general has a wider muzzle, stouter zygomata, and squarer zygomatic outline. The gular gland site in males is probably less invaginate than in males of the northern race of comparable gonad development.

Cotypes: in the South Australian Museum, M.3685 Adult ♂, skin⁽¹⁾ without skull (original number 1649HHF), and M.3673 Adult ♀, skin with skull (original number 1609HHF).

Type Locality: Approximately 26° 50' south and 132° 15' east; about the waters of Chundrinna and Walthajalkanna north of the Everard Range in the north-west of the State of South Australia, and about 650 miles south-west of the type locality of the northern race. The cotypes are selected from a series of 40 examples collected by the writer at the above camps in February, 1933, 20 of which are deposited in the South Australian Museum.

An unexpected result of the examination of the large collection of *Notomys* from this portion of the centre, has been the proof of the complete absence of *Notomys cervinus* of Waite *et auct* (*nec* Gould) as I have recently defined it

⁽¹⁾ The skins are from alcohol preserved material and are to be interpreted as representing individuals in which the original subterminal colour of the dorsum was near Ridgway's Ochraceous Tawny, the terminal dorsal colour about Fuscous Black, and the general effect near Prout's Brown.

from Mulka in the Lake Eyre Basin. While this may be no more than a coincidence, it arouses a suspicion that Waite's identification of the entire Horn Expedition material of the smaller *Notomys*, from Charlotte Waters and adjacent areas, as *N. cervinus* may have been mistaken, and that the dark-bellied form which, according to Brazenor, is numerous in these collections, is, at least in part, *alexis*. Two other circumstances tend to confirm this. Firstly, although the skulls figured by Waite (6) almost certainly represent *cervinus* as it occurs also at Mulka, some details of his measurements and figures, especially the gular "pouch," are more suggestive of *alexis*. Secondly, a series from Wantapellya, which was recorded by Waite (8) in 1915 as *Ascopharynx cervinus* has been carefully re-examined during this review and undoubtedly represents *alexis in toto*.

In view of this uncertainty it may be well, therefore, to briefly restate the characters which, in my view, separate the two species. *Dimensions*: both ear and foot in *alexis* are distinctly shorter; the short narrow ear is highly characteristic. *Pelage*: *alexis*, though very variable in external colour, is always browner and usually more distinctly grizzled and the dorsal coat crisper. Pure white belly fur, however, although more characteristic of *cervinus* than any other species, is not an infallible distinction as it occurs in *alexis* and "*aistoni*," usually as a juvenile or early moult character, but occasionally in adults also. Conversely dark-bellied examples of *cervinus* occur. *The gulo-sternal area*: *alexis* differs from *cervinus* in the constant possession in the male of a well-developed tract of specialized glistening sternal hairs as in *mittelli macropus*. The gular pit in its maximum development in *alexis* is smaller, deeper, with more fleshy but less well-defined labia, and the posterior floor of the pit differs in having a more conspicuous area of naked creased skin. *Skull*: individuals of both may be found which are indeterminable by inspection, but in series *alexis* is seen to be less specialized, more *Pseudomys* like, with a less globular braincase and normally with squarer zygomatic outline, especially in the var. *everardensis*.

The Status of Ascopharynx fuscus Wood Jones (9)

It has been suggested (1) that this is synonymous with *N. alexis alexis* Thomas. Unfortunately, no type was designated for this animal, and the only specimen available here which might reasonably be supposed to represent it, is in the collection of the Zoology Department of the University of Adelaide. It is stated to have been from Ooldea and to have formed part of the collection of Professor Wood Jones, though the original label is no longer attached. It is a nearly adult male, greatly faded, but represents an animal very close to *N. cervinus* of Waite *et auct.* of the Lake Eyre Basin, the sunken gular gland site in particular being identical. The pes is 34 mm., with a maximum width of 4 mm. (as measured in these papers across the pads of digits 2-4); the tail 127 mm.; the ear 25 mm.

There is no trace of a sternal patch, and the animal clearly has nothing to do with *alexis*.

NOTOMYS MITCHELLI var.

Since Spencer's (4) misapplication of this name to *longicaudatus* and Waite's (7) correction of the same, the opinion has prevailed that this form is somewhat coastal in distribution and does not occur in the centre. Recently, however, Brazenor (*op. cit.*) has published a record of his *N. mitchelli alutacea* from an unspecified locality in "Central Australia." No form of *mitchelli* was taken during the field work of 1931-1935, nor is it present in any recent collection from the centre which I have examined, but in the old collections of the South Australian Museum are two mounted skins, much faded but apparently reconcilable with *alutacea*. They are labelled, respectively, "Alice Springs" and "Central Australia 1879." The gulosternal tract is exactly as in *N. mitchelli macropus*, and the foot length is 35 and 38 mm., respectively.

The colouration of the type series of *alutacea*, as recorded, is rather suggestive of alteration by alcohol.

NOTOMYS "AISTONI" Brazenor

This species which probably represents the true *cervinus* of Gould and Sturt (*nec* Waite *et auct.*), is represented by numerous imperfectly localized examples in the older Museum collection from "Central Australia." There is some reason to believe that the bulk of them are from Cowarie in the Lake Eyre Basin, and are, therefore, toponymical. Four of the remainder are definitely from Ooldea, however, and have already been recorded (3), and the other two from Charlotte Waters, whence they were received in company with *alexis*. They do not differ in any important respect from those of the large series recently reviewed. One originally represented the clear buff Type 1 pelage, and the other is an intermediate. These two records from Ooldea and Charlotte Waters are of value in proving the presence of this very distinct species, west of the Lake Eyre Basin.

NOTOMYS LONGICAUDATUS Gould

Most of the Central Australian examples of this species, so far examined, have come from north central localities beyond the Macdonnells. It was not obtained in the area worked over personally, but there is a specimen in the South Australian Museum from Mount Burrell, 50 miles north-west of Idracowra on the Fincke. This is a male with: Head and body 127 mm.; Tail, 205; Pes, 44 x 6; Ear, 29.

As pointed out by Brazenor (*op. cit.*), the presternal gland is exactly as in "aistoni" and the general structure of manus and pes appear also to be nearer this species than to *mitchelli* or *cervinus* or *alexis*. The propriety of using these features in erecting a genus, however, seems strongly contra indicated by the circumstance that the actual range of structural diversification in manus and pes in the group is very slight, while the individual variation is extraordinarily high; and secondly by the fact that glandular structures (however useful in the discrimination of species) frequently occur in confusingly similar form in widely

sundered groups and in consequence are notoriously unreliable as criteria of affinity.

The current nomenclature of this large Central Australian form can scarcely be considered as more than provisional, until detailed comparison of series with topotypes from the south-west of Western Australia can be made.

REFERENCES

- 1 BRAZENOR, C. W. 1934 Mem. Nat. Mus., Melb., **8**, 80
- 2 FINLAYSON, H. H. 1939 Trans. Roy. Soc. S. Aust., **63** (1), 108
- 3 FINLAYSON, H. H. 1939 Trans. Roy. Soc. S. Aust., **63** (2), 358
- 4 SPENCER, B. 1896 Rept. Horn Expd., **2**, 10
- 5 THOMAS O. 1922 Ann. Mag. Nat. Hist., Ser. 9, **9**, 315
- 6 WAITE, E. R. 1897 Proc. Roy. Soc. Vict., **10**, pl. vi, fig. 3 a-f
- 7 WAITE, E. R. 1897 Proc. Roy. Soc. Vict., **10**, 117
- 8 WAITE, E. R. 1915 Trans. Roy. Soc. S. Aust., **39**, 735
- 9 WOOD JONES, F. 1925 Recds. S. Aust. Mus., **3** (1), 3

EXPLANATION OF PLATES

PLATE XIV

- Fig. A Dorsal aspect of the skull of an adult ♀ of *Notomys alexis cecrardensis*, to show the retention of juvenile characters in muzzle and zygomata. x 2.2 ca.
- Fig. B Dorsal aspect of a normally developed skull of an adult ♀ of *Notomys alexis cecrardensis*, extracted from an individual having external characters identical with A. x 2.2 ca.
- Fig. C Lateral aspect of B. x 2.2 ca.
- Fig. D Palatal aspect of B. x 2.2 ca.
- Fig. E Right manus of an adult ♂ of *Notomys alexis cecrardensis*. x 3.4 ca.
- Fig. F Right manus of an adult ♂ of *Notomys* cf. *longicaudatus* from Mount Purrell. x 3 ca.

PLATE XV

- Figs. A, B, C Aspects of the skull of *Notomys longicaudatus*, ♂. (The example figured by Waite. Proc. Roy. Soc. Vict., 1897, pl. v, fig. 2). x 1.7 ca.
- Fig. D Right Pes of *Notomys longicaudatus*. ♂, adult. (id., pl. xiv, fig. F.) x 1.8 ca.
- Fig. E General aspect of the gular glandular area as seen in alcohol preserved material of *Notomys alexis alexis* from Basedow Range area, Central Australia. Adult, ♂. x 1.2 ca.
- Fig. F Right Pes of *Notomys alexis cecrardensis*. Adult, ♂. x 2.3 ca. (id., pl. xiv, fig. E).
-